

Units of Measurement

Weight/Mass

Da	dalton	1 Da	$= 1.65 \times 10^{-24}$ g
g	gram	1 g	$= 0.3035$ oz (avoirdupois)
kg	kilogram	1 kg	$= 2.2$ lb
Mg	megagram, metric ton	1 Mg	$= 10^6$ g or 2,205 lb
μg	microgram	1 μg	$= 10^{-6}$ g
mg	milligram	1 mg	$= 1/1,000$ g; 10^{-3} g
mol	mole	1 mol	molecular weight in grams
ng	nanogram	1 ng	$= 10^{-9}$ g
oz	ounce (avoirdupois)	1 oz	$= 28.3$ g
pg	picogram	1 pg	$= 10^{-12}$ g
lb	pound	1 lb	$= 0.45$ kg

Length

cm	centimeter	100 cm	$= 1$ m
dm	decimeter	1 dm	$= 1/10$ m
ft	foot	1 ft	$= 0.3$ m
in.	inch	1 in.	$= 2.54$ cm
km	kilometer	1 km	$= 0.6$ mi
m	meter	1 m	$= 3.3$ ft
μm	micrometer, micron	1 μm	$= 10^{-6}$ m
mi	mile	1 mi	$= 1.6$ km
mm	millimeter	1 mm	$= 1/1,000$ m; 10^{-3} m

Area

A	acre	1 A	$= 4047$ m ²
Ha	hectare	1 Ha	$= 2.47$ A
m ²	square meter	1 m ²	$= 10.8$ ft ²

Volume

ft ³	cubic foot	1 ft ³	$= 0.028$ m ³
m ³	cubic meter	1 m ³	$= 35$ cubic feet
cm ³ or cc	cubic centimeter	1 cc	$=$ approximately 1 mL
gal	gallon (U.S.)	1 gal	$= 3.8$ L
L	liter	1 L	$= 1.05$ liquid quarts
mL	milliliter	1 mL	$= 10^{-3}$ L

Concentration

mg/m ³	milligrams per cubic meter	1 mg/m ³	$= (\text{mol wt})(\text{ppm})/24.45$
mM	millimolar	1 mM	$= 1$ M/1,000
mppcf	millions of particles per cubic foot	mppcf $\times 35.3$	$=$ millions of particles/m ³
M	molar; moles of solute per liter of solution		
N	normal; 1 gram equivalent of solute per liter of solution		
ppm	parts per million	1 ppm	$= 1$ mg/kg $= (\text{mg}/\text{m}^3)(24.45)/(\text{mol wt})$
ppb	parts per billion	1 ppb	$= 1$ $\mu\text{g}/\text{kg}$
ppt	parts per trillion	1 ppt	$= 1$ ng/kg

Pressure

kPa	kilopascal	1 kPa	$= 0.145$ lb/in ²
MPa	megapascal	1 MPa	$= 1$ Pa $\times 10^6$
mm Hg	millimeter of mercury	1 mm Hg	$= 0.0193$ lb/in ²
Pa	pascal	1 Pa	$= 1$ newton per square meter

Temperature

°C	degrees Celsius	$= (\text{°F} - 32) \times 5/9$
°F	degrees Fahrenheit	$= (\text{°C} \times 9/5) + 32$

Energy/Power

A	ampere	1 A	$= 1$ C per second
C	coulomb	1 C	$= 1$ A \times s
eV	electronvolt	1 eV	$= 1.6 \times 10^{-12}$ erg
	erg	1 erg	$= 10^{-7}$ J
J	joule	1 J	$= 10^7$ erg
keV	kiloelectronvolt	1 keV	$= 1,000$ eV
MeV	megaelectronvolt	1 MeV	$= 1 \times 10^6$ eV
mW	milliwatt	1 mW	$= 10^{-3}$ erg/s

Radiation

Bq	becquerel	1 Bq	$= 1$ disintegration per second
Ci	curie	1 Ci	$= 3.7 \times 10^{10}$ disintegrations per second
Gy	gray	1 Gy	$= 1$ J per kg
mCi	millicurie	1 mCi	$= 10^{-3}$ Ci
pCi	picocurie	1 pCi	$= 10^{-12}$ Ci
	rad	1 rad	$= 0.01$ Gy
R	roentgen	1 R	$= 2.58 \times 10^{-4}$ C per kg
rem	roentgen equivalent man	1 rem	$= 0.01$ Sv
Sv	sievert	1 Sv	$= 1$ J per kg

Exponentials (Scientific Notation)

10^2 , 10^3 , 10^6 , etc.: superscripts refer to the number of times 10 is multiplied by itself, e.g., $10^2 = 10 \times 10 = 100$; $10^3 = 10 \times 10 \times 10 = 1,000$, etc.